INTRODUCTION TO SOLVENTS

The regulations that you must follow depend on which type(s) of solvent and precleaner(s) you are using. Listed below are the types of solvents generally used by vehicle maintenance shops and an overview of the hazards and regulations associated with each. Refer to the sections that follow this introduction, *Petroleum-Based Solvents and Aqueous-Based Solvents*, for more information on the type of solvent used by your shop.

1. **Petroleum-Based Solvents (mineral spirits).**
   New/virgin petroleum-based solvents are classified according to their flash point. The term "flash point" refers to the temperature at which a material could ignite if exposed to a spark. Materials with a low flash point (100-140˚ F) will ignite more easily than materials with a higher flash point (140-200˚ F.)

   Low-Flash Solvents (100-140˚ F)
   Petroleum-based solvents with a flash point from 100-140˚ F are also referred to as "low-flash solvents". This type of solvent is a moderate fire hazard and will be an ignitable hazardous waste and, possibly, a toxic hazardous waste when disposed. Solvents of this type are subject to OSHA, DOT, Department of Fire & Building Services and IDEM requirements.

   If your shop uses a solvent with flash point of less than 110˚ F, be aware that the Department of Fire & Building Services prohibits the use of this type of solvent for cleaning floors or walls. This type of solvent may be used for parts washing only if used in a special, closed machine that is specifically approved for parts washing. The parts washing machine must be located in a separate, well-ventilated room constructed in accordance with the provisions of the Building Code for a Group H occupancy. Contact the Plan Review Division of the Department of Fire & Building Services for more information.

   High-Flash Solvents (140-200˚ F)
   Petroleum-based solvents with a flash point from 140-200˚ F are also referred to as "high-flash solvents." Used high-flash solvent is not considered to be an ignitable hazardous waste unless it is contaminated and its flash point drops below 140˚ F.

   Be aware that many high-flash solvents have a flash point that is only slightly above the 140˚ F threshold for this group of solvents. If you use precleaners that contain flammable materials, your used high-flash solvent may become a low-flash solvent (i.e., an ignitable hazardous waste) that is subject to more stringent regulations. In addition to potentially being an ignitable hazardous waste, a used high-flash solvent may also be a toxic hazardous waste if contaminated to the extent that it exhibits hazardous waste characteristics. If your precleaners contain any chemicals that are on the list of listed hazardous wastes, your used solvent will automatically be a hazardous waste.
2. **Aqueous (water) Based Solvents**

Aqueous-based solvents are generally a less toxic alternative to petroleum-based solvents. Unlike petroleum-based solvents, there are generally no hazards or adverse impacts associated with the detergent and water solution found in aqueous based solvents. The detergent used for aqueous parts washing may be an acid, alkaline or a citrus-based solution. Some aqueous systems use microbes to eat the oil and grease that accumulates in the cleaning system.

Aqueous parts washers may be in the form of a heated parts washing sink, an immersion tank, or a high-temperature spray cabinet. A high-temperature spray cabinet is similar to a large dishwasher in that it combines heat, soap and spraying action to clean dirty parts. This type of unit is available in various sizes, with the larger units having ample capacity for cleaning large parts.

Because aqueous-based solvents are generally non-hazardous, employee exposure to hazardous materials is reduced Shops that use a high-temperature spray cabinet also benefit because the cabinet does the work of cleaning the part, allowing the employee to place the part in the cabinet and return to working on the vehicle.

If you are considering switching to an aqueous based cleaner, be aware that some aqueous cleaners will cause the parts to rust, requiring that the parts be treated after they are cleaned.
Also be aware that used aqueous-based solvents may be a toxic hazardous waste if they are contaminated to the extent that they exhibit hazardous waste characteristics or are contaminated with a listed hazardous waste. Potential contaminants include oil and grease, lead, chromium, cadmium, and any precleaners used by your shop.

3. <u>Chlorinated solvents</u>

Using chlorinated solvents can lead to significant compliance work for your shop. The best option is to avoid using this type of solvent. As mentioned in Chapter 1, chlorinated solvents are outside of the scope of this manual. Chlorinated solvents include the following:

- chlorobenzene (monochlorobenzene or benzene chloride)
- trichloroethylene (trichloroethane, ethinyl trichloride)
- chlorinated fluorocarbons
- methylene chloride (dichloromethane, methylene dichloride, methylene bichloride)
- tetrachloroethylene (perchloroethylene, ethylene tetrachloride, tetrachlorethylene)
- 1,1,1-trichloroethane (methyl chloroform, chlorothene)

Check the product label or your MSDS sheets for these chemicals. If you are using any of them, OSHA and IDEM air regulations will apply. Hazardous waste regulations may also apply. Call CTAP for assistance.